

ABSTRACT

The present invention provides a system and method of controlling flow outlet from the hydraulic pump to provide the level of flow required to execute the driver's steering command. This method of control reduces the average torque requirement of the hydraulic pump thereby improving fuel economy by unloading the vehicle's accessory drive, while also providing the variable assist power steering feature. The Fuel Efficient Power Steering (FEPS) control algorithm is an optimal method of regulating flow by actuating the electronic flow control device in the pump assembly. This electronic flow control device allows an increase in hydraulic fluid flow to the steering gear in order to increase the provided assist and to reduce hydraulic fluid flow to the steering gear to improve fuel economy, if no additional assist is needed. The calculation of the desired flow control device current is primarily based on vehicle speed and steering wheel rate. Some additional input signals such as steering angle or engine rpm could also be used for enhanced functionality.